From 2020 EPPSU to the 2021 Snowmass (Original Schedule)

The Snowmass Process is organized by the DPF of the American Physical Society: **https://snowmass21.org**

→ Identify and document a vision for the future of particle physics (PP) in the US in a global context

→ Communicate opportunities for discovery in PP to broader community and to the (US) government.

Submit a 2-page Letter of Interest: https://snowmass21.org/loi ; deadline - August 31, 2020

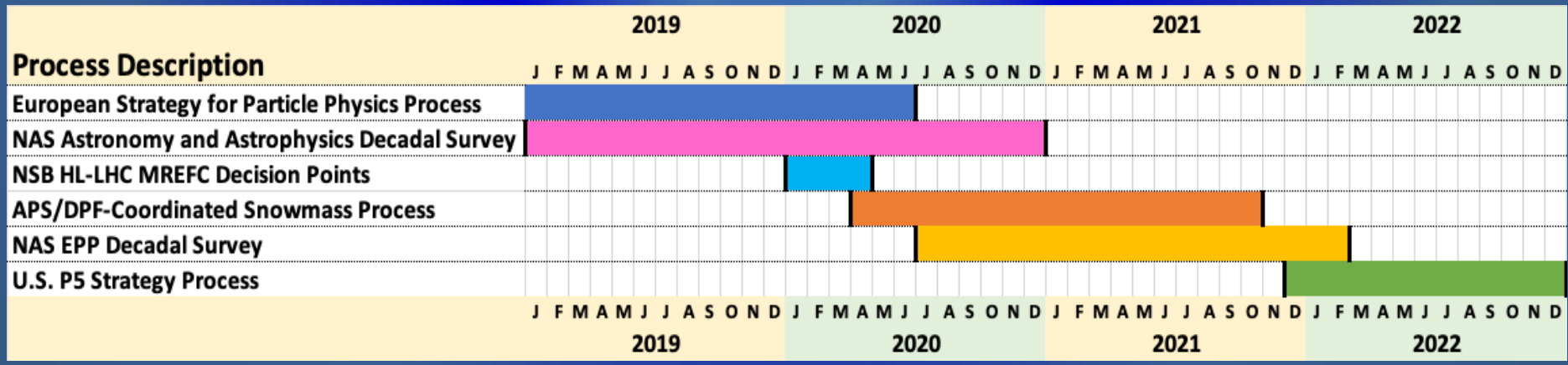
Submit a contributed "White Paper": https://snowmass21.org/submissions/start ; deadline - July 31, 2021

Many Snowmass working group meetings & study sessions now progressing (just a few links):

- ✓ Kick-off April APS meeting, Apr. 18, 2020: https://indico.fnal.gov/event/23601
- ✓ Instrumentation Frontier Workshop, Jun. 19, 2020: https://indico.fnal.gov/event/43730
- ✓ Energy Frontier Workshop, July 20-22, 2020 : https://indico.fnal.gov/event/43963
- ✓ Community Planning Meeting, Oct. 5-9, 2020: https://indico.fnal.gov/event/44870

- ❖ **Final Snowmass Community Study Meeting is scheduled for July 11-20, 2021**
- ❖ New National Academy of Sciences (NAS) Decadal Survey planned to overlap with Snowmass process to enable addressing full breadth of particle and astroparticle physics

Next P5 strategy/prioritization process to begin after Snowmass and NAS Decadal Survey, circa end of CY 2021: P5 report by Nov-Dec 2022 to inform FY 2024 & 2025 U.S. budgets



Snowmass Report Structure

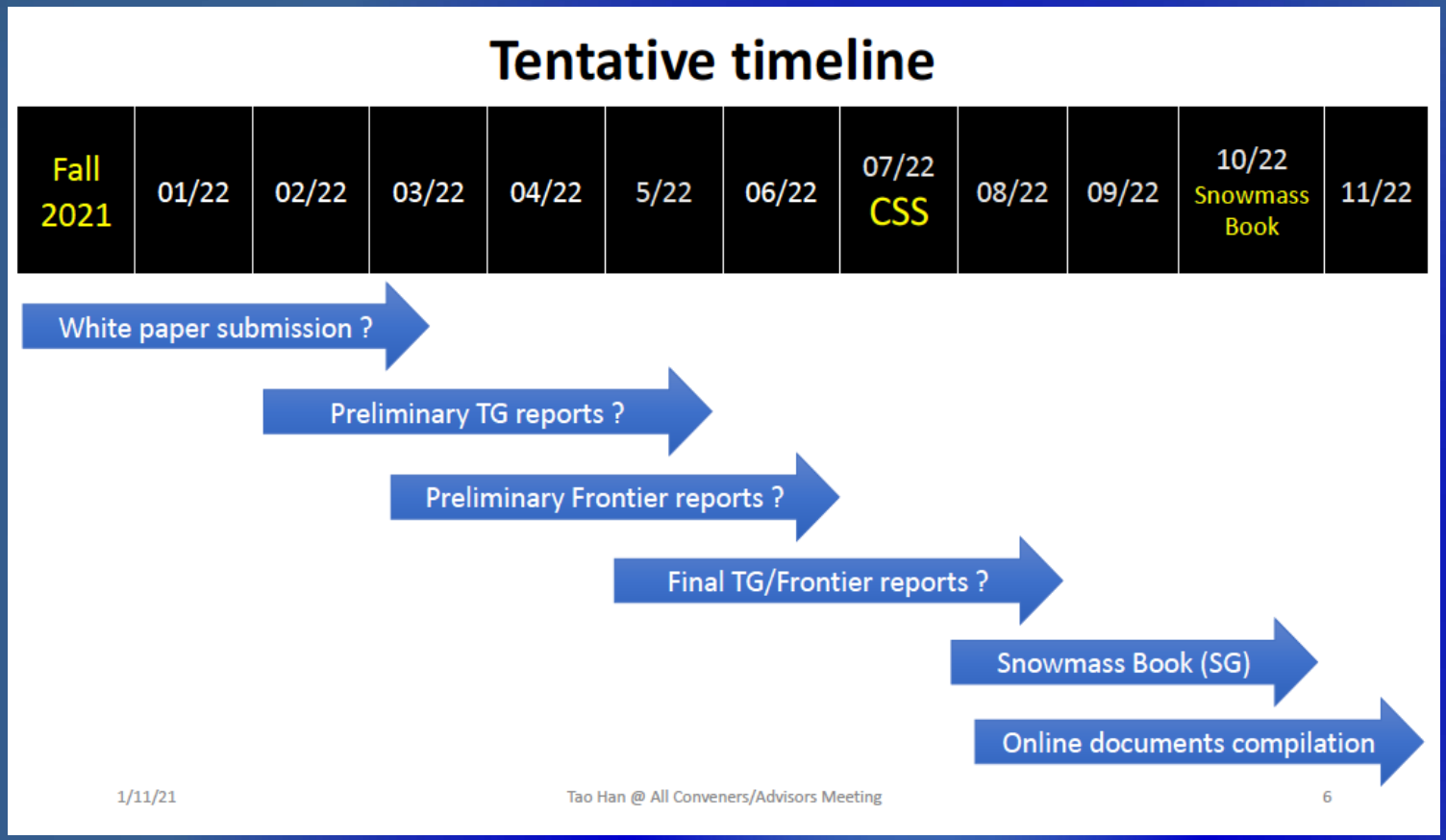
- **Snowmass Summary for Public**
  - 2 pages
- **Snowmass Summary Report**
  - ~50 pages
  - Executive Summary: ~10 pages
  - Introduction
  - 10 Frontier Executive Summaries
  - Executive Summaries of Multi-Frontier Topics
  - Conclusion
- **Snowmass Book**
  - ~500 pages
  - Snowmass Summary Report (~50 pages)
  - Frontier Summaries (~400 pages with 10 Frontiers)
  - Multi-Frontier Topic Summaries (~50 pages)
- **Topical Group Reports**
  - Topical Group Reports: short reports

  (Written by TG members including early careers)
- **Reports of Multi-Frontier Topics**
  - Multi-Frontier Topics spanning multiple Frontiers.
  - Each Multi-Frontier Topic Summary: ~10 page
- **Contributed Papers**
  - References

  (Written by the community including early careers)

= White Papers

New Snowmass Process Timeline: 2021 → 2022



Because of the COVID19 pandemic, the Snowmass Report will be delayed by one year

The new Snowmass timeline includes:

- Preliminary Topical Group Reports – Spring 2022
- Preliminary Frontier Reports – late Spring 2022
- Snowmass Community Summer Study – Summer 2022 in University of Washington, Seattle
- Snowmass Book – October 2022

The deadline for contributed papers will be delayed but the specific date will be decided by January 2021. Originally scheduled frontier-level Spring 2021 workshops will be moved to later times.

Snowmass Process: From Now To Fall 2021 and 2022

✓ To implement the delay, an universal approach desired across all frontiers but not converged:

○ Activities on hold till when (end of May or end of August)
○ Slow Down vs Pause (Energy and Accelerator Frontiers prefer SLOW DOWN, other – PAUSE)

✓ A compromise statement is being developed and hopefully available as early as in ~ 2 weeks

○ Keep flexibility at topical group level

With Some Preliminary Dates:

- Deadline for White Paper submission to arXiv: March 15, 2022. Any late submissions and updates may not be incorporated in the working group reports.
- Deadline for preliminary reports by the topical groups: May 31, 2022.
- Deadline for preliminary reports by the frontiers: June 30, 2022.
- Deadline for all final reports by TG and Frontiers: August 31, 2022.
- Snowmass Book due: the end of October, 2022.
- Snowmass on-line archive due: the end of November, 2022

Instrumentation Frontier (IF5): Topical Group on MPGDs

Conveners: Sven Vahsen, Bernd Surrow, MT

Proposed Instrumentation Frontier procedure before PAUSE:

- ✓ To finish the preliminary list of White Papers from IF topics, and to have all IF LOIs "assigned" to one of these documents to provide clarity to the proponents.
- ✓ To have a primary set of editors for the documents to have clear points of contact.

id#	File (color: primary white paper topic)	Title	contact	Talk given in IF meeting?
56	IF2_IF7_IF3_IF4_IF5_IF6-056.pdf	Belle II detector upgrades	sevahsen@hawaii.edu, for	N
175	IF3_IF5_Simone_Mazza-175.pdf	High density 3D integration of LGAD sensors through wafer to wafer bonding	simazza@ucsc.edu	n/a
183	IF3_IF5-EF1_EF4-183.pdf	Time projection chamber R&D	qihr@ihep.ac.cn	N
20	IF5_CF2_AF5_Ferrer-Ribas-020.pdf	The International Axion Observatory (IAXO): MPGD development	E. Ferrer Ribas (Irfu, CEA)	Y
96	IF5_IF0_Brunbauer-096.pdf	Optical readout of MicroPattern Gaseous Detectors: developments and perspectives	florian.brunbauer@cern.ch	N
98	IF5_IF0_C.Lampoudis-098.pdf	High precision timing with the PICOSEC micromegas detector	Christos.Lampoudis@cern.ch	Y
44	IF5_IF0_Gnanvo_Hohlmann_Posik_Surrow-044.pdf	Advanced Micro-Pattern Gas Detectors for Tracking at the Electron Ion Collider	hohlmann@fit.edu	Y
159	IF5_IF0_Kondo_Gnanvo-159.pdf	Development of large micro pattern gaseous detectors for high rate tracking at Jefferson Lab	kgnanvo@virginia.edu	Y
40	IF5_IF0_M_Hohlmann-040.pdf	MPGDs for tracking and muon detection: progress review and updated R&D roadmap	hohlmann@fit.edu	Y
103	IF5_IF0_Marco_Cortesi-103.pdf	LOI from NSCL	cortesi@nscl.msu.edu	Y
57	IF5_IF0-057.pdf	Pixelated resistive MicroMegas for high-rates environment	massimo.della.pietra@cern.ch	Y
184	IF5_IF0-184.pdf	A high-gain, low ion-backflow double micro-mesh gaseous structure	zhzhy@ustc.edu.cn	N
15	IF5_IF3-015.pdf	A time projection chamber using advanced technology for the International Large Detector at the International Linear Collider	A. Bellerive (Carleton)	N
68	IF5_IF8-EF4_EF8_CEU-ALEO-068.pdf	Advanced GEM detectors for future collider experiments	A.Colaleo (Bari)	N
168	IF5_IF9-EF0_EF0-168.pdf	Development of the Micro-Pattern gaseous detector technologies: an overview of the CERN-RD51 collaboration	Silvia.DallaTorre@ts.infn.it	N
5	IF5-005.pdf	The role of MPGD-based photon detectors in RICH technologies	S. Dalla Torre (Trieste)	N
7	IF5-EF4-007.pdf	micro-RWELL detector	Giovanni.Bencivenni@lnf.infn.i	N
50	IF6_IF5_Laktineh-Calice-050.pdf	Timing semi-digital hadronic calorimeter (T-SDHCAL)	laktineh@in2p3.fr	N (n/a)
101	IF7_IF5_H.MULLER-101.pdf	Trigger extensions for the scalable readout system SRS	Hans.Muller@cern.ch	N
70	IF8_IF5-NF10_NF0_Ben_Jones-070.pdf	Scintillating and quenched gas mixtures for HPGTPCs	ben.jones@uta.edu	N
189	CF1_CF0-NF10_NF4-IF5_IF4_Vahsen-189.pdf	CYGNUS: a nuclear recoil observatory with directional sensitivity to dark matter and neutrinos	sevahsen@hawaii.edu	Y
31	EF3_EF4-IF3_IF5-031.pdf	The IDEA drift chamber for a Lepton Collider	franco.grancagnolo@le.infn.it	n/a
119	EF4_EF0-AF3_AF0-IF3_IF5_GrahamWilson-119.pdf	Exploring precision electroweak physics measurement potential of e+e- colliders	gwwilson@ku.edu	n/a
193	SNOWMASS21-IF5_IF0-193.pdf	Snowmass 2021 Expression of Interest: MPGD-based Transition Radiation Detector	yulia@jlab.org	

Colors denote tentative white paper assignment. Some LOIs fit into multiple white papers – more details:

https://docs.google.com/spreadsheets/d/1EBj27pUGWTrfY6X87RXxPp-BnZzl1SAKtdyFIydumLE/edit?usp=sharing

Proposed list of IF5 Contributed/ White Papers - *preliminary – needs more discussion*

	White Paper Topic	Executive Summary Length
1	MPGDs: Recent advances and current R&D	3
2	MPGDs for nuclear physics experiments	1.5
3	Recoil imaging for DM, neutrino, and BSM physics*	1.5
4	MPGDs for TPCs at future lepton colliders	1.5
5	MPGD for muon detection at future colliders	1.5
	Grand summary table + text	1

White Papers can be any length

Total of summaries should be <= 10 pages

White Paper Organizers:

	White Paper Topic	Lead Organizer(s)	Accepted?
1	MPGDs: Recent advances and current R&D	Klaus Dehlmelt, Andy White	Y
2	MPGDs for nuclear physics experiments	Kondo Gnanvo, Matt Posik	Y? (Matt)
3	Recoil imaging for DM, neutrino, and BSM physics*	Sven Vahsen	Y
4	MPGDs for TPCs at future lepton colliders	Alain Bellerive	Y
5	MPGDs for muon detection at future colliders	Marcus Hohlmann	

***aiming for inter-frontier paper with Cosmic and Neutrino Frontiers**

CPAD Instrumentation Frontier Workshop (March 18-23, 2021)

Gaseous detectors « are back » as an explicit topic of the CPAD Workshop Program
Deadline for abstract submission: February 22, 2021

CPAD, the Coordinating Panel for Advanced Detectors by the DPF, is the leading organization in the US for the advancement and promotion of HEP detector instrumentation . Since its inception in 2012, CPAD has organized annual workshops, that bring together the detector community in the country. It has guided the field with its Grand Challenges documented in its annual reports. CPAD has launched the DOE's Graduate Instrumentation Research Award (GIRA), the DPF Instrumentation Award, a pilot quantum sensing workshop, and many more.

Registration is now open for the next CPAD Workshop, organized by Stonybrook University and held virtually on March 18, 19, 22: https://www.stonybrook.edu/cfns/cpad2021/index.html

The focus of the workshop will be a discussion of the outcome of the recent BRN for Detectors with the aim to sharpen some of the technical requirements and to formulate a roadmap for the needed R&D. Therefore, the work in the parallel sessions will be organized along the same technical groups as in the BRN: Quantum Sensors, Noble Elements, Calorimetry, Solid State Vetexing and Tracking, Photodetectors, TDAQ, Readout and ASIC, Gaseous Detectors. In addition, special attention will be paid to cross cutting, interdisciplinary topics, in particular with the NP/EIC community.

Early Career: In light of the ongoing pandemic and thus added complications especially for people in instrumentation and a lack of networking opportunities for early career members of our community, we are organizing a plenary session with short contributions drawn from that community. Please indicate your career status under 'Position' during the registration process if you want to be considered for this session.

With best regards,Petra Merkel and Karsten Heeger (CPAD Chairs)
For the organizing committee